

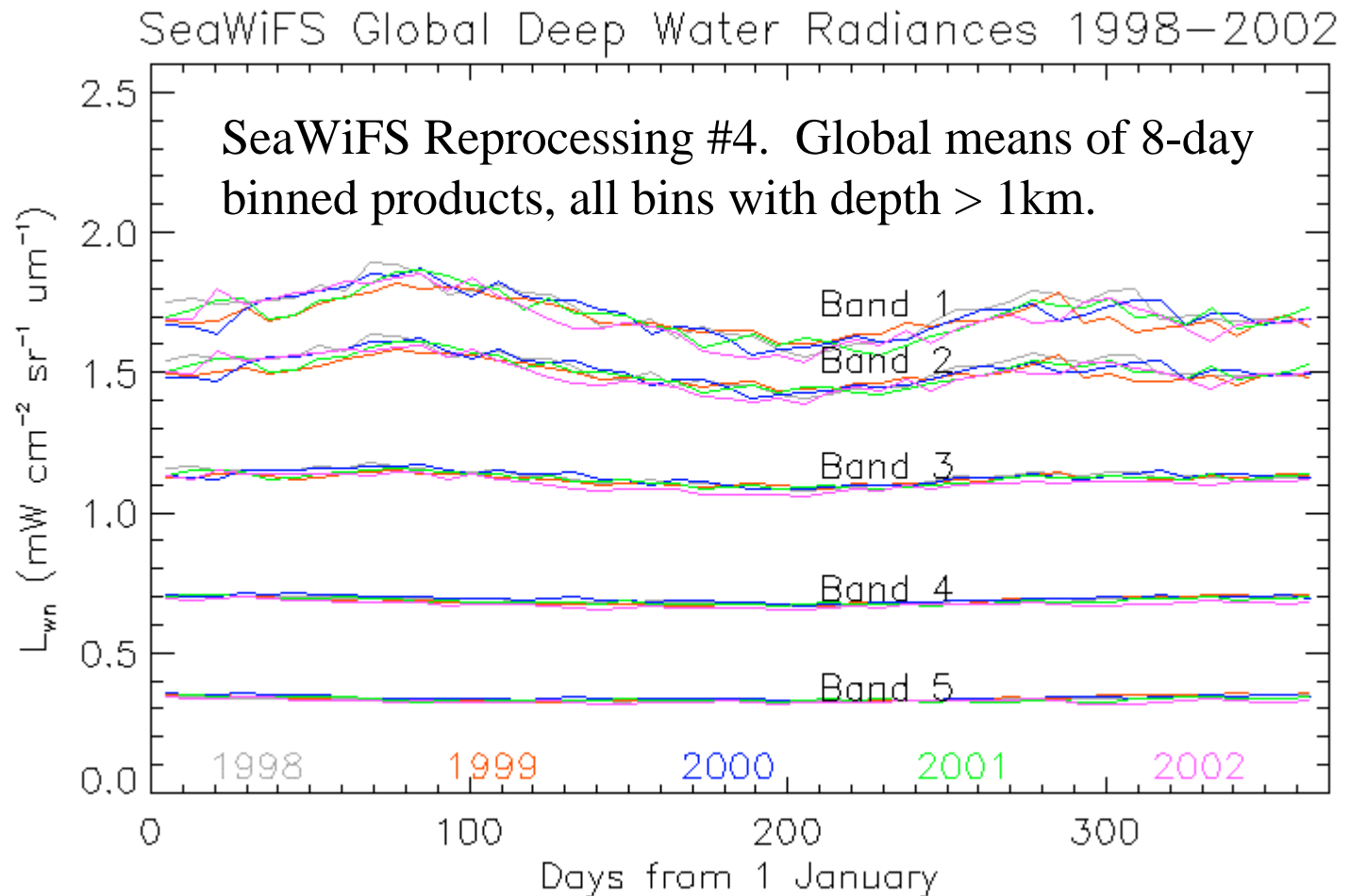
MODIS/Terra vs SeaWiFS Comparative Time-Series of Global and Regional Trends

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OCRT

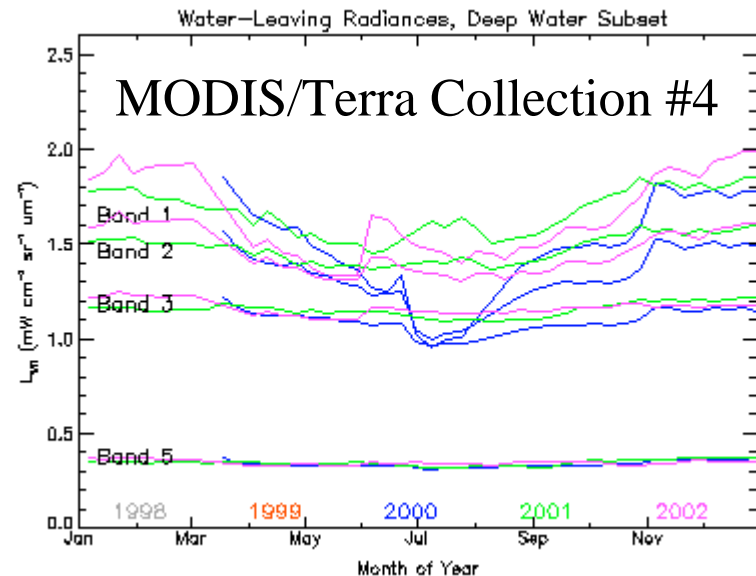
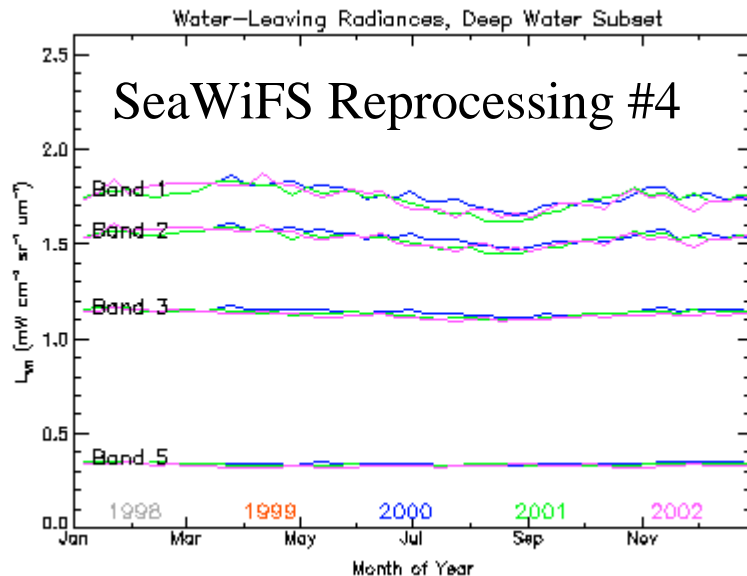
April 14-17, 2003

SeaWiFS Annual Repeatability

Deep-Water Subset

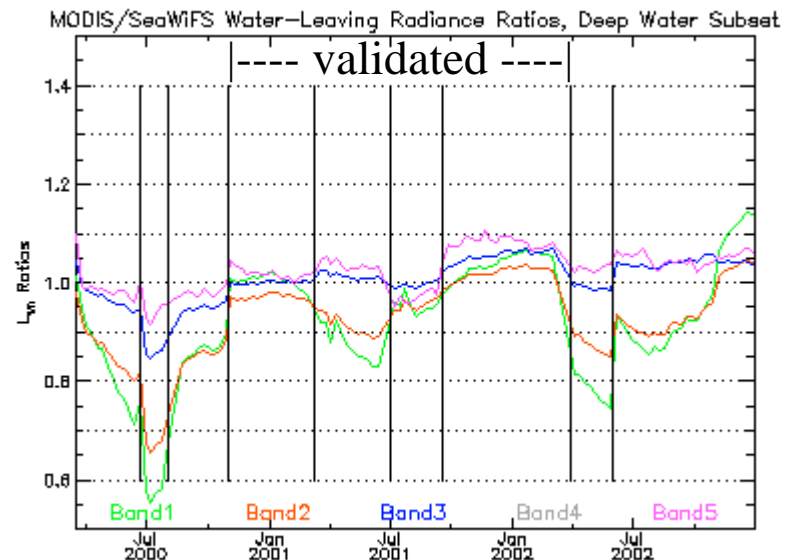
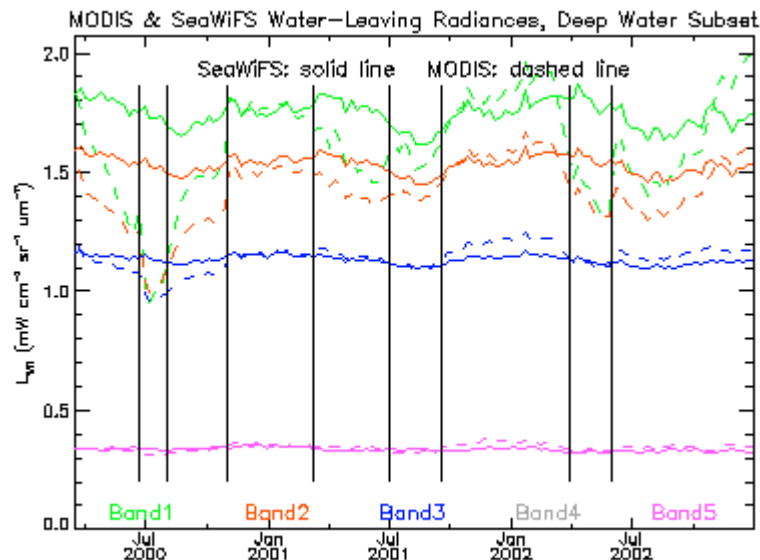


MODIS and SeaWiFS Annual Repeatability Deep-Water Subset, Common Bins



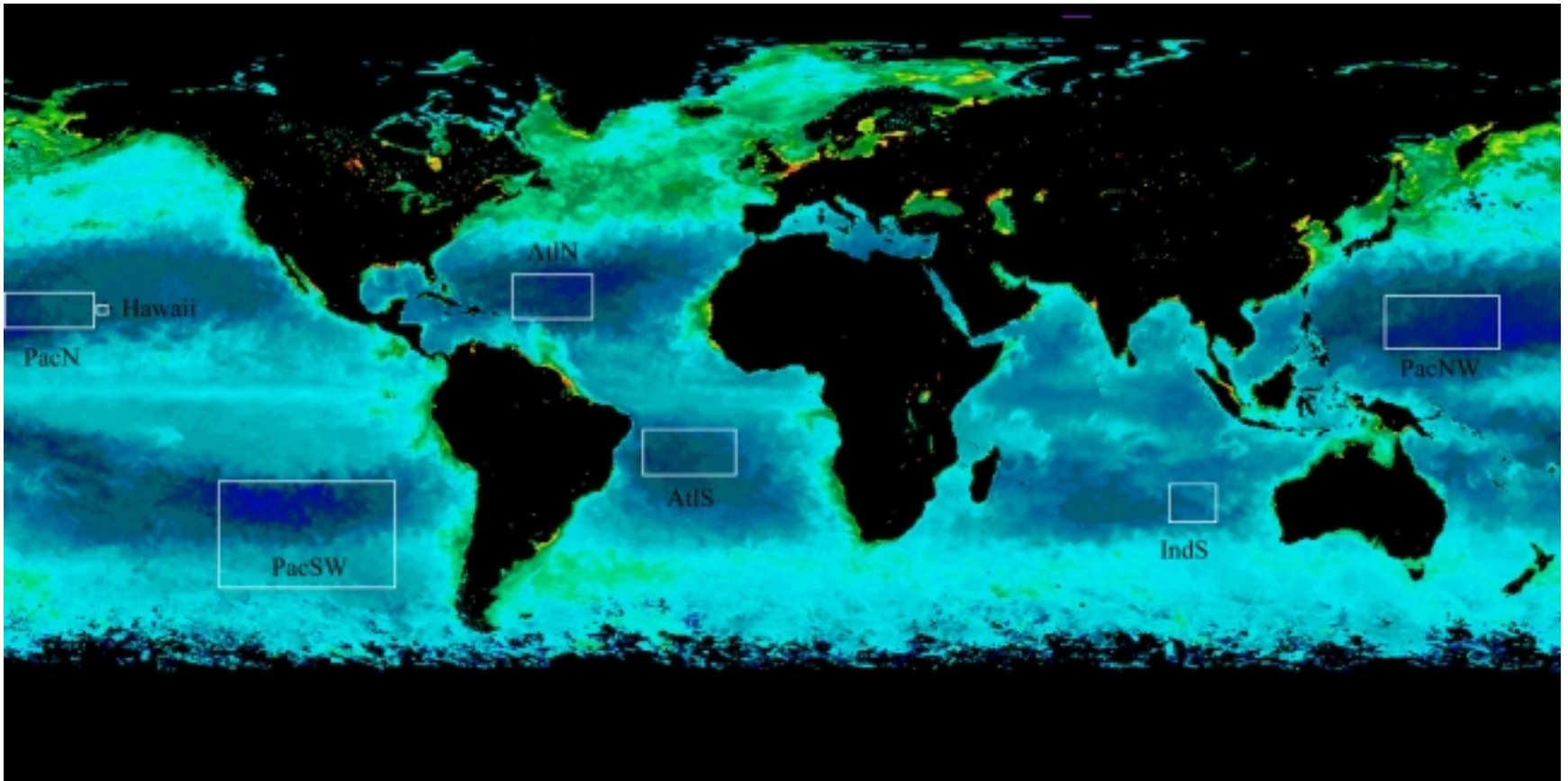
SeaWiFS shows excellent repeatability in seasonal cycle, while MODIS/Terra does not. Will this improve with the next MODIS reprocessing?

MODIS and SeaWiFS nLw Trends Deep-Water Subset, Common Bins



Deviations between MODIS and SeaWiFS often correlate with changes between MODIS calibration epochs. Differences as large as 15% in 412-nm water-leaving radiances, within the “validated” MODIS/Terra time-period. Spectrally dependent.

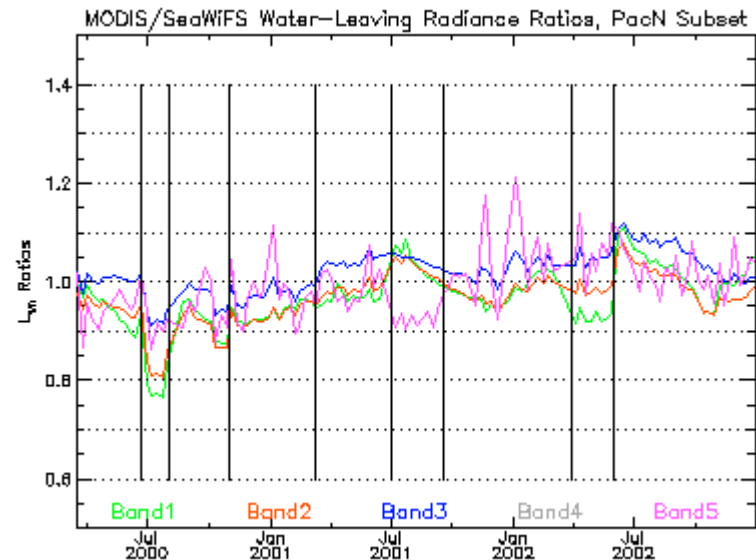
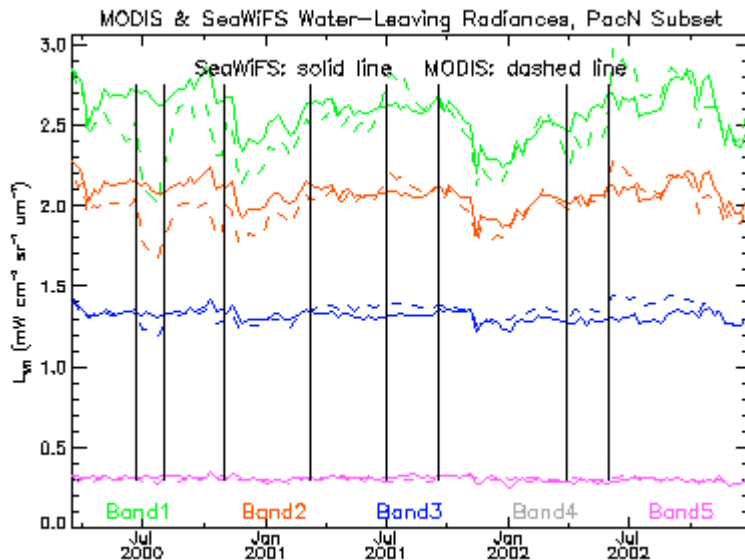
Regional Trend Analysis



http://simbios.gsfc.nasa.gov/staff/franz/l3trend/modis_seawifs/

MODIS and SeaWiFS nLw Trends

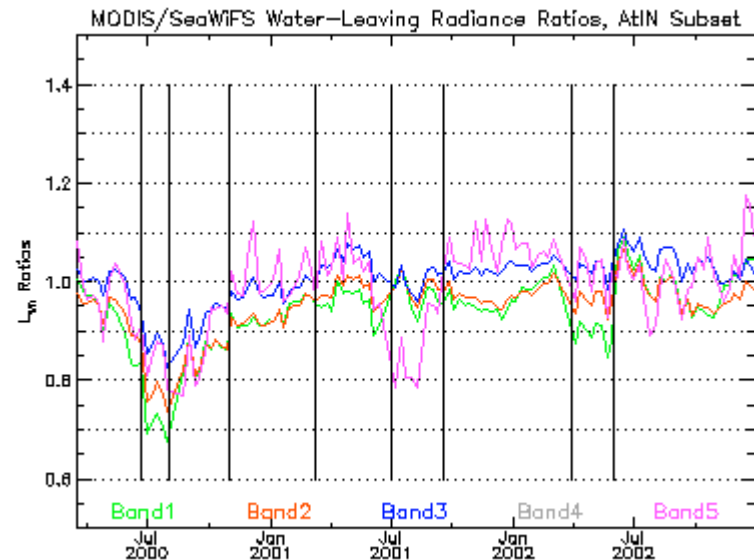
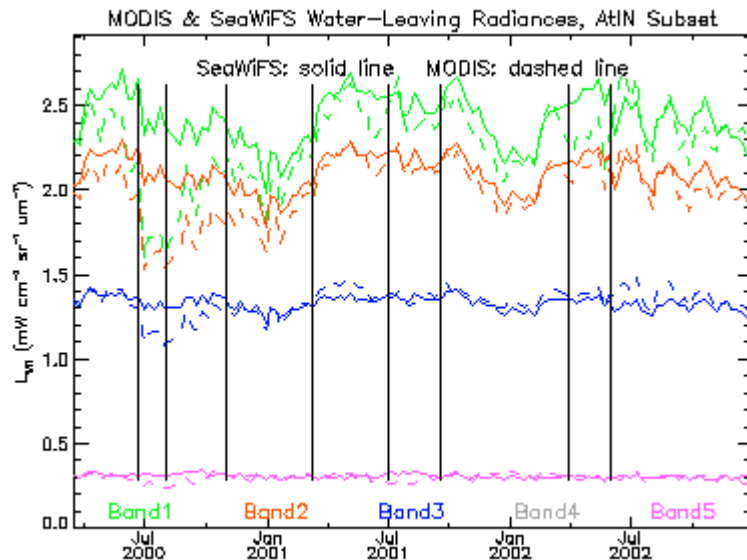
Northern Pacific, 15N to 23N, 180W to 160W



Ratio trends derived from northern Pacific region show similar features to deep-water results, but deviations are smaller.

MODIS and SeaWiFS nLw Trends

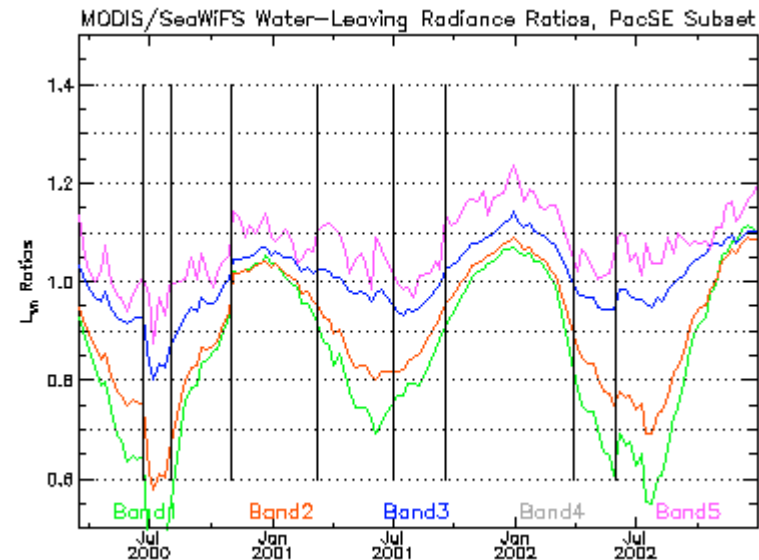
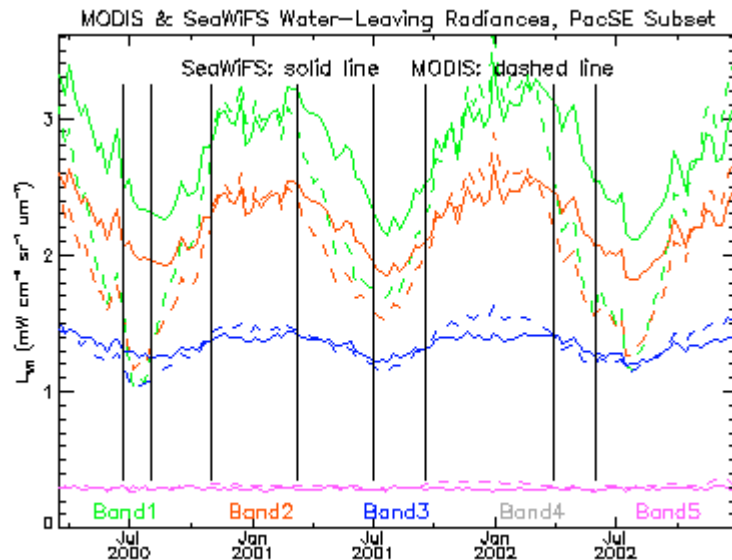
Northern Atlantic, 17N to 27N, 63W to 44W



Deviations between MODIS and SeaWiFS trends in Northern Atlantic region are larger than those of the Northern Pacific. Differences increase with distance from the MOBY region?

MODIS and SeaWiFS nLw Trends

South East Pacific, 21S to 45S, 130W to 89W



Deviations between MODIS and SeaWiFS in the southern hemisphere show a strong seasonality which peaks in the austral winter. MODIS polarization error?

Summary

- SeaWiFS and MODIS/Terra water-leaving radiance and chlorophyll retrievals (OC4, OC3M) show good agreement in global, mission-long averages, but significant deviations exist which vary systematically with time and location.
- Comparative time-series analyses and annual repeatability tests should be performed to evaluate the potential improvement of a reprocessing, **prior to reprocessing**.
- At a minimum, two consecutive days per month could provide sufficient information for such an evaluation.